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October 14, 2018

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 15th Street, SW
Washington, DC 20554

Re: *Promoting Investment in the 3550-3700 MHz Band,* ***GN Docket No. 17-258****.*

Dear Ms. Dortch,

Midcontinent Communications (Midco) appreciates the Commission's Draft Order in this docket. Spectrum is a finite natural resource in need of thoughtful use and licensing rules, such as those detailed in the Draft Order. Midco is passionate about providing high-speed and reliable fixed wireless broadband, and knows the impact that the 3.5 GHz band can have in rural America to close the Digital Divide. In order to further support the 3.5 GHz band as part of the rural broadband solution, Midco requests an additional qualifying set of criteria for rural bidding credits for the priority access license (PAL) auction.

BACKGROUND

Formed in 1931, Midco has a long history of serving the Upper Midwest, starting with movie theaters and eventually evolving into a Midwestern connectivity and technology company. While Midco has some operations in western Wisconsin and the Lawrence area in Kansas, the bulk of our footprint rests in South Dakota, North Dakota, and rural Minnesota. *See* Figure 1.[1] To better serve our most rural and remote residents, Midco acquired InvisiMax, Inc., an innovative fixed wireless company, in March of 2018, and we have begun deploying fixed wireless deeper into our footprint.

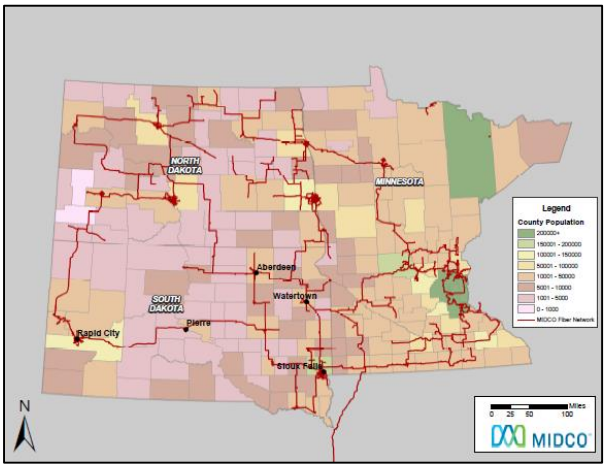

Figure 1: Midco Rural Footprint

[1] While our fiber connects into Minneapolis, MN in a colocation carrier hotel, we do not provide broadband services in the urban Minneapolis/St. Paul area. The fiber depicted in Figure 1 includes fiber to be built to support future fixed wireless deployments. Full-size copies of the maps provided herein are attached as Appendix 1.

Midco has previously explained the importance of the 3.5 GHz band for fixed wireless in rural areas.[2] As a summary, Midco was one of the first United States testing sites for next generation carrier aggregation technology using our 3.65 GHz nationwide non-exclusive and 3.5 GHz experimental licenses in six communities in rural North Dakota. Our testing capped out at speeds of 238 Mbps download and 27 Mbps upload, only because current customer premise equipment (CPE) cannot yet support faster speeds. We expect that CPE upgrade to occur next year. Currently, 30 customers receive speeds of at least 100/20 from these test sites. As shown in Figure 2, the furthest customer is 8.8 miles away from our antennas mounted on the grain elevator, and can still receive minimum speeds of 100/20. There can be no doubt that the 3.5 GHz band, like other mid-band spectrum, can be used in fixed wireless technology to close the Digital Divide.

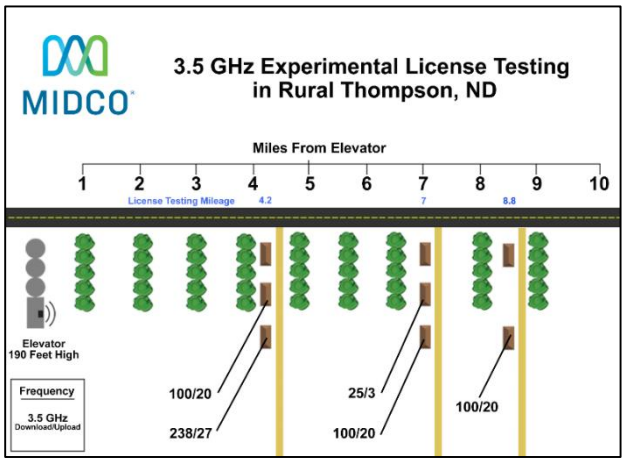

Figure 2: Midco Next Generation Fixed Wireless Testing

To continue offering speeds in excess of 100/20 and to increase the service area for our fastest speeds, Midco needs 80 MHz of spectrum in the 3.5 GHz band. Given the limited amount of General Authorized Access (GAA) spectrum, a high probability exists that Midco (and other rural fixed wireless providers) will participate in the PAL auction to purchase priority licenses. A revision to the rural bidding credit qualifying criteria will allow larger but still rural providers like Midco to purchase PALs and further build out their rural networks.

DISCUSSION

In general, Midco supports the Draft Order, which will create a forward-looking framework for the 3.5 GHz band to ensure that this coveted mid-band spectrum can be used for wireless broadband service. Midco particularly agrees with the decision to auction PALs at the county level, as counties are the best compromise between the desire to adopt smaller license areas and the practical considerations that affect designing and deploying real-world wireless networks. Midco also appreciates the clear safe harbors created by the Commission for meeting the substantial service definition for renewing a PAL. However, revising the rural bidding credits would better ensure that providers focused on rural services will be able to bid on PAL authorizations.

I. Rural providers face unique pressures on their return on investment for licensed spectrum in sparsely populated rural America.

Throughout the Draft Order, the Commission cited the 3.5 GHz band as key spectrum for emerging 5G, or small cell, mobile technology.[3] While small cell technology may drive

[2] *See* Letter from Nicole Tupman, Corporate Counsel, Midco, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 17-258 et al. (filed Aug. 29, 2018).

[3] *See, e.g.*, Promoting Investment in the 3500-3700 MHz Band, GN Docket No. 17-258, *Draft Report and Order* ¶ 1 (Oct. 2, 2018) (the, "Draft Order") ("Since the Commission established service rules for the 3550-3700 MHz band

innovation and an ecosystem for next generation wireless technology, small cell mobile technology will not be a solution for solving the Digital Divide in rural America given the high density of towers necessary to deploy the technology. For example, emerging small cell technology would require an estimated 350 small cell towers to serve Sioux Falls, SD, with a square footage of only 74 miles.[4] Midco's fixed wireless network, however, currently provides fixed wireless broadband to large portions of the Red River Valley in ND and MN with a square footage of approximately 14,000 miles using 140 cell towers, water towers and grain elevators.

Mobile providers interested in deploying small cell technology have indicated an interest in operating in the 3.5 GHz band and acquiring PALs. While a larger rural fixed wireless provider like Midco could likely purchase PALs at or near their opening bid price, competition from mobile providers may drive that opening price up considerably. Rural bidding credits help level the relative purchasing power of large mobile carriers and smaller fixed wireless providers.

Rural bidding credits also allow providers like Midco a method to better justify the investment in purchasing PALs. Rural counties typically have more square footage than urban counties and generally require more towers and infrastructure to reach the most remote customers. Rural fixed wireless providers, therefore, must spend more on their infrastructure to meet the proposed safe harbors for substantial service (i.e., 50% signal strength coverage for point-to-multipoint services in the license area).[5] However, rural providers have a smaller population base over which to spread the investment cost of licensed spectrum. With a smaller base over which to spread the cost, rural providers, even larger rural providers, do not have as robust of an investment in licensed spectrum as do the large mobile carriers. When calculating all of the costs of providing fixed wireless using PALs and dividing that cost among our end users, the return on investment will be lower in rural areas than in urban areas.

This situation is not likely to change as our rural areas are experiencing and will likely continue to experience rural flight. As summarized in Figure 3, much of rural America is experiencing rural flight as younger generations move to more urban areas for increased educational and employment opportunities.[6] Consistent with the rural flight pattern, the most rural areas of our footprint continue to experience a declining population, with the exception of Native America reservations and (relatively) urban areas within our rural footprint. Figure 4 shows an example of this rural flight pattern in South

Figure 3: Graphic Depiction of Rural Flight

(3.5 GHz band) in 2015, it has become clear that the band will be an essential part of next generation wireless network deployments, including 5G, throughout the world. . . . Given the importance of the 3.5 GHz band for 5G deployment internationally and the need for more flexible-use mid-band spectrum to support next generation wireless networks, including 5G, it is important to ensure that the policies we adopt for the band ensure its potential use for 5G").

[4] These numbers are based on Midco's internal analysis of towers required to deploy mobile small cell technology in Sioux Falls, SD.

[5] Draft Order ¶ 60 ("A licensee providing a mobile service or point-to-multipoint service may demonstrate substantial service by showing that it provides reliable signal coverage and offers service over at least 50 percent of the population in the license area.").

[6] U.S. Dep't of Agriculture, Economic Research Service, *Population Change by Metro/Nonmetro Status*, https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=55975.

Dakota on the left from the United States Department of Agriculture, compared to Figure 5 defining the urban, rural, and Native American areas within South Dakota.

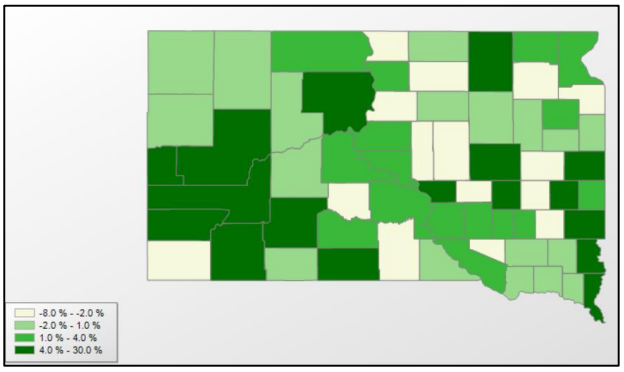

Figure 4: USDA, Change in Population from 2010-2017[7]

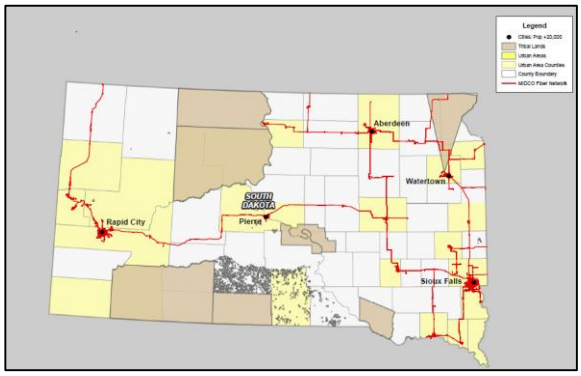

Figure 5: Tribal, Urban and Rural South Dakota

Continuing rural flight will likely further decrease Midco's return on investment for purchasing licensed spectrum. While larger mobile carriers have the financial strength to absorb a reduced return on investment or balance such reduced return with their higher urban return on investment, companies like Midco may be unable to justify such a loss. Revised rural bidding credits would allow on offset to this reduced return.

II. To further incentivize rural providers in purchasing PALs and building out their networks, the Commission should add an additional qualifying threshold for rural bidding credits.

The Commission has thoughtfully considered methods to assist rural and small providers in purchasing PALs, including through bidding credits.[8] While these credits will certainly assist the smallest of rural providers, they will not benefit Midco, even though our footprint includes both North Dakota and South Dakota, the fourth and fifth least densely populated states respectively.[9] Midco cannot benefit from the rural bidding credits because we currently have about 400,000 "wireless, wireline, broadband, and cable subscribers[.]"[10] Midco, therefore, encourages the Commission to add an additional threshold for applicability of the rural bidding credit to incentivize larger, longstanding rural providers to bid on the PALs, such as the following:

- The company must operate in a predominately rural area, as measured by the total geography of the service area it covers;
- The total subscriber limit for a company to be eligible for the rural bidding credit should be 750,000 subscribers;

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[7] U.S. Dep't of Agriculture, Economic Research Service, *Percentage Change in Population, 2010-2017*, https://data.ers.usda.gov/reports.aspx?ID=17827.
[8] Draft Order ¶¶ 84-92.
[9] Statista, *Population Density in the U.S. by Federal States*, https://www.statista.com/statistics/183588/population-density-in-the-federal-states-of-the-us/.
[10] 47 CFR 1.2100(f)(4)(i)(A).

- A company should have 250,000 or fewer subscribers in each state in which it seeks the rural bidding credit; and
- Subscribers should be measured based on billing relationships. That is, if a customer purchases three different services, the customer counts as only one subscriber.[11]

Under 47 U.S.C. § 309(j)(3)(A), the objectives the Commission is required to consider in designing an auction include promoting "the development and rapid deployment of new technologies, products, and services for the benefit of the public, including those residing in rural areas[,]" but the Commission is not constrained in how it designs bidding credits or other mechanisms to achieve this objective.

Adding the new, proposed qualifying threshold for the rural bidding credit will help with the rapid deployment of new technologies to benefit the public, including in rural America. Midco, for example, would use PAL spectrum, combined with general authorized access (GAA) spectrum, to deploy next generation, LTE-standard-based carrier aggregation technology, which is currently being tested and refined in Midco's rural, North Dakota service areas. Similar to emerging small cell technology, which uses carrier aggregation technology to combine multiple spectrum bands to offer high-speed services in urban areas, fixed wireless carrier aggregation technology can aggregate multiple mid-band spectrum channels to provide speeds in excess of 220/25 in rural areas. And this technology will only continue to be improved and refined as next generation or 5G technology is developed. The proposed qualifying rural bidding credit threshold, therefore, would propel broader deployment of this new technology to serve much-needed broadband to rural residents, rural businesses, rural healthcare, and smart agriculture deployments.

There is no barrier to adopting a rural bidding credit that is different from the rural credit adopted by the Commission in previous proceedings. Although the Commission has adopted general rules for bidding credits, those rules do not automatically apply to any auction, and the Commission specifically asked for comment on what types of bidding credits to use in the notice of proposed rulemaking in this proceeding.[12] Where, as here, modifications to the general rule will help to achieve the Commission's objective of ensuring high quality service in rural areas, it is appropriate to adopt a bidding credit regime that will ensure that companies with longstanding commitments to rural communities, such as Midco with its more than 85 years of Midwestern operations, can use those credits to further that objective. The modifications proposed by Midco, which would supplement the Commission's original proposal, would permit a carefully defined group of bidders with existing interests in rural areas to have access to the credits, and, therefore, would increase the number of rural customers that would receive high-speed broadband.

Thank you for your attention to this important matter, and for assisting providers like Midco in closing the Digital Divide. If Midco can be of any further assistance, please do not hesitate to contact me.

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[11] This is the same principle that the Commission adopted in the Incentive Auction order.

[12] Promoting Investment in the 3500-3700 MHz Band et al., GN Docket No. 17-258 et al., *Notice of Proposed Rulemaking and Order Terminating Petitions*, 32 FCC Rcd 8071, 8081, para. 25 n.65 (2017).

Sincerely,

/s/ Nicole Tupman

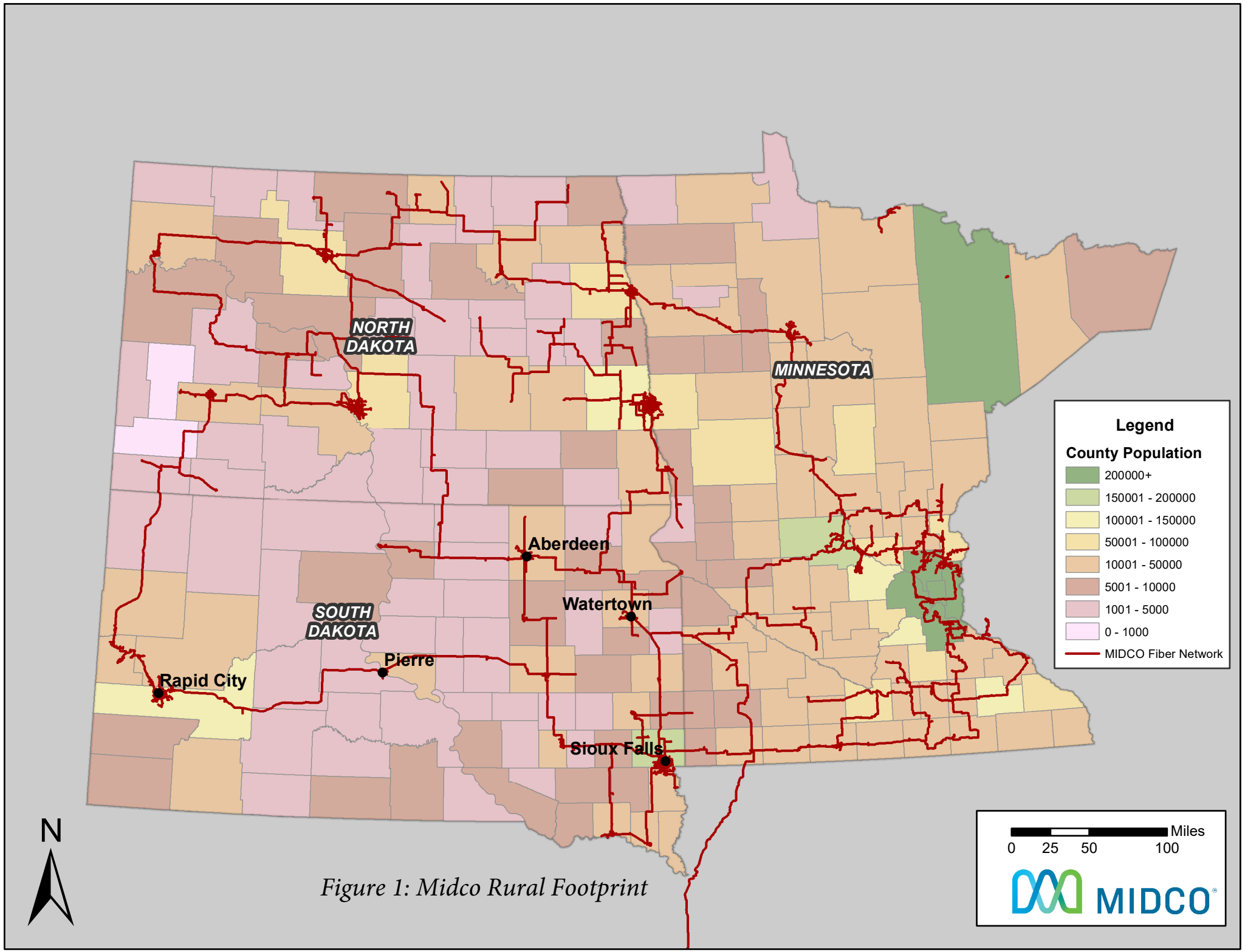
Nicole Tupman
Corporate Counsel

Enclosure: Appendix 1 (full-size maps)

cc: Rachel Bender (Chairman Pai)
Umair Javed (Commissioner Rosenworcal)
Erin McGrath (Commissioner O'Rielly)
Will Adams (Commissioner Carr)

Appendix 1

Full-Size Maps and Diagrams



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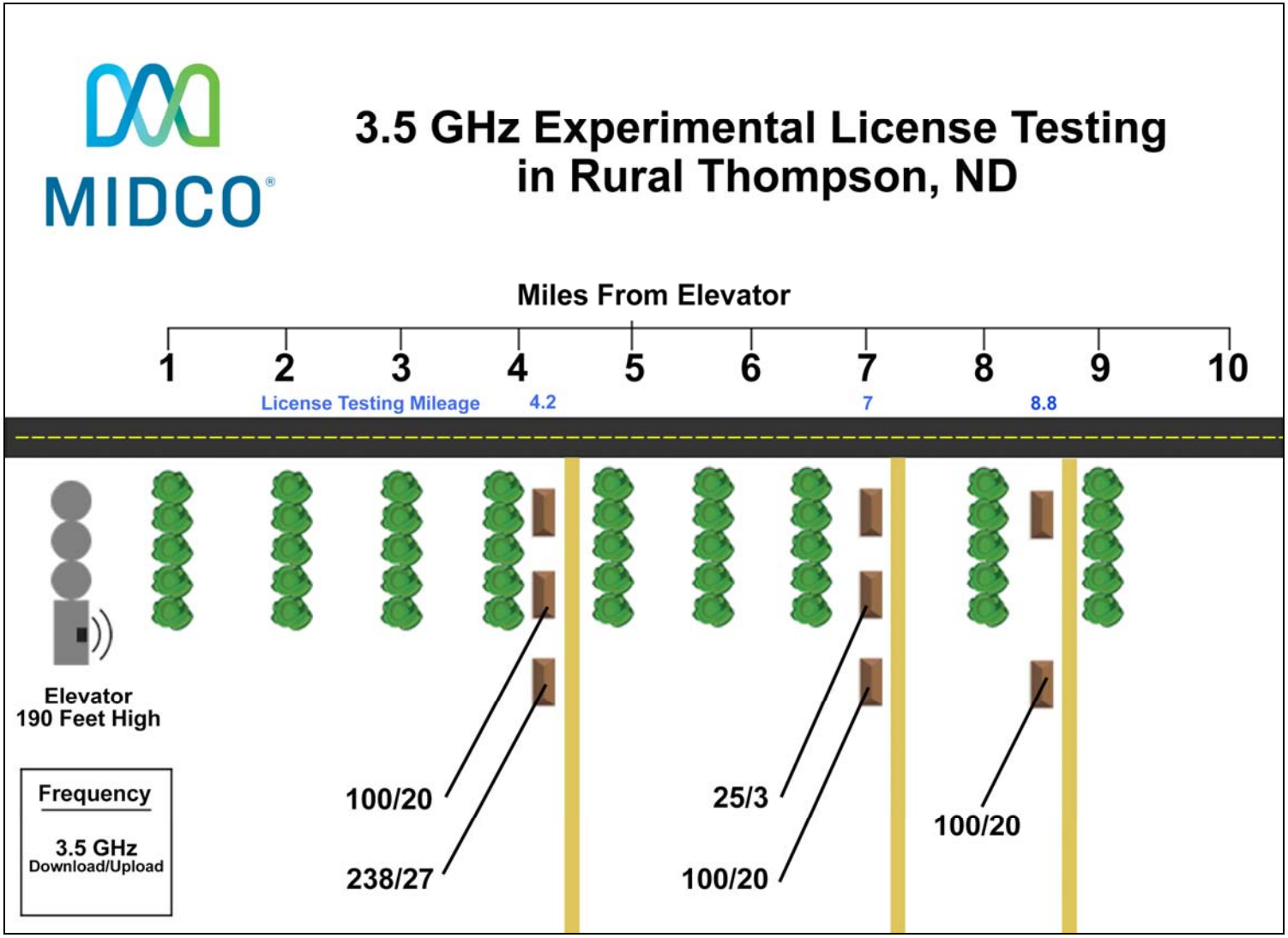

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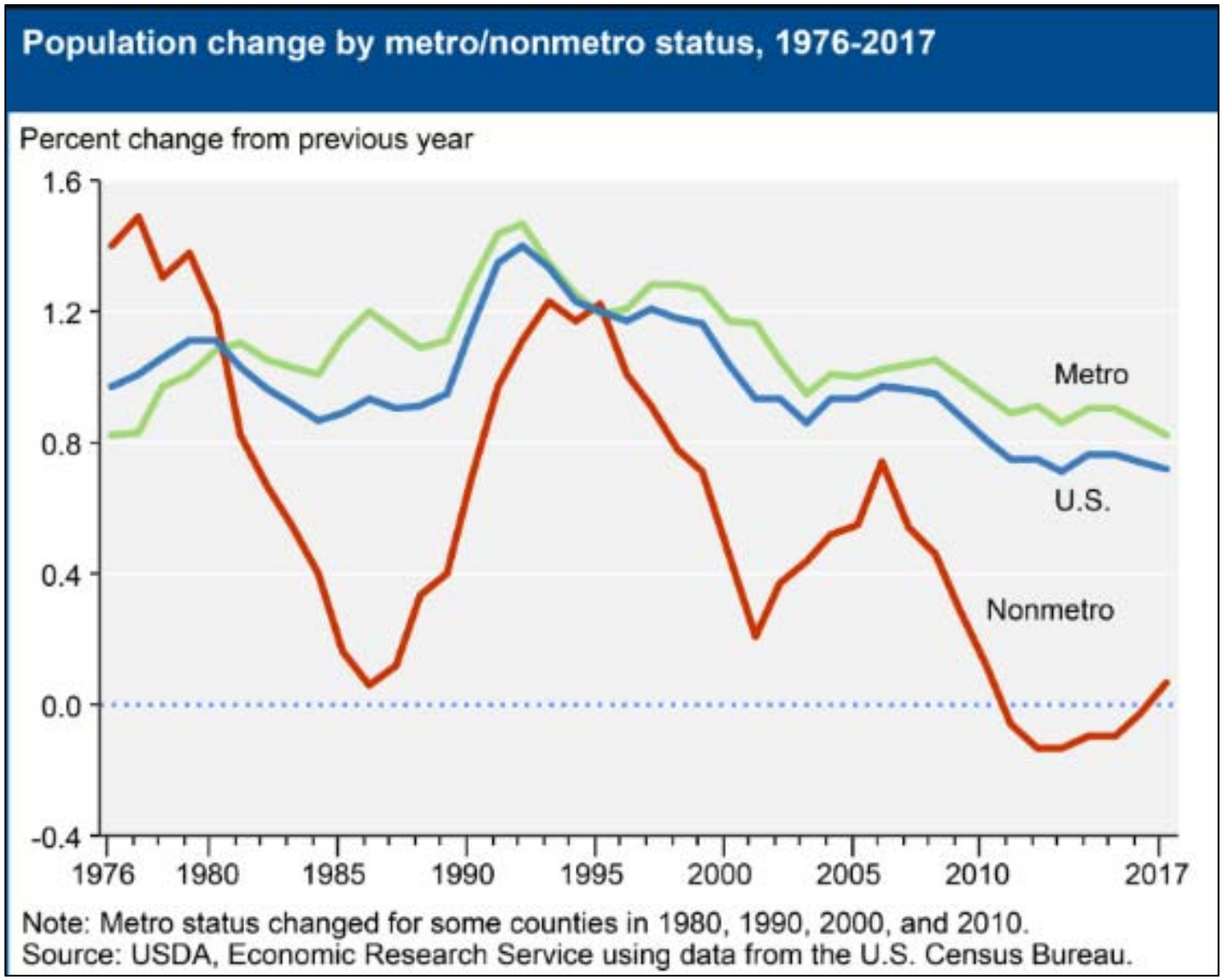

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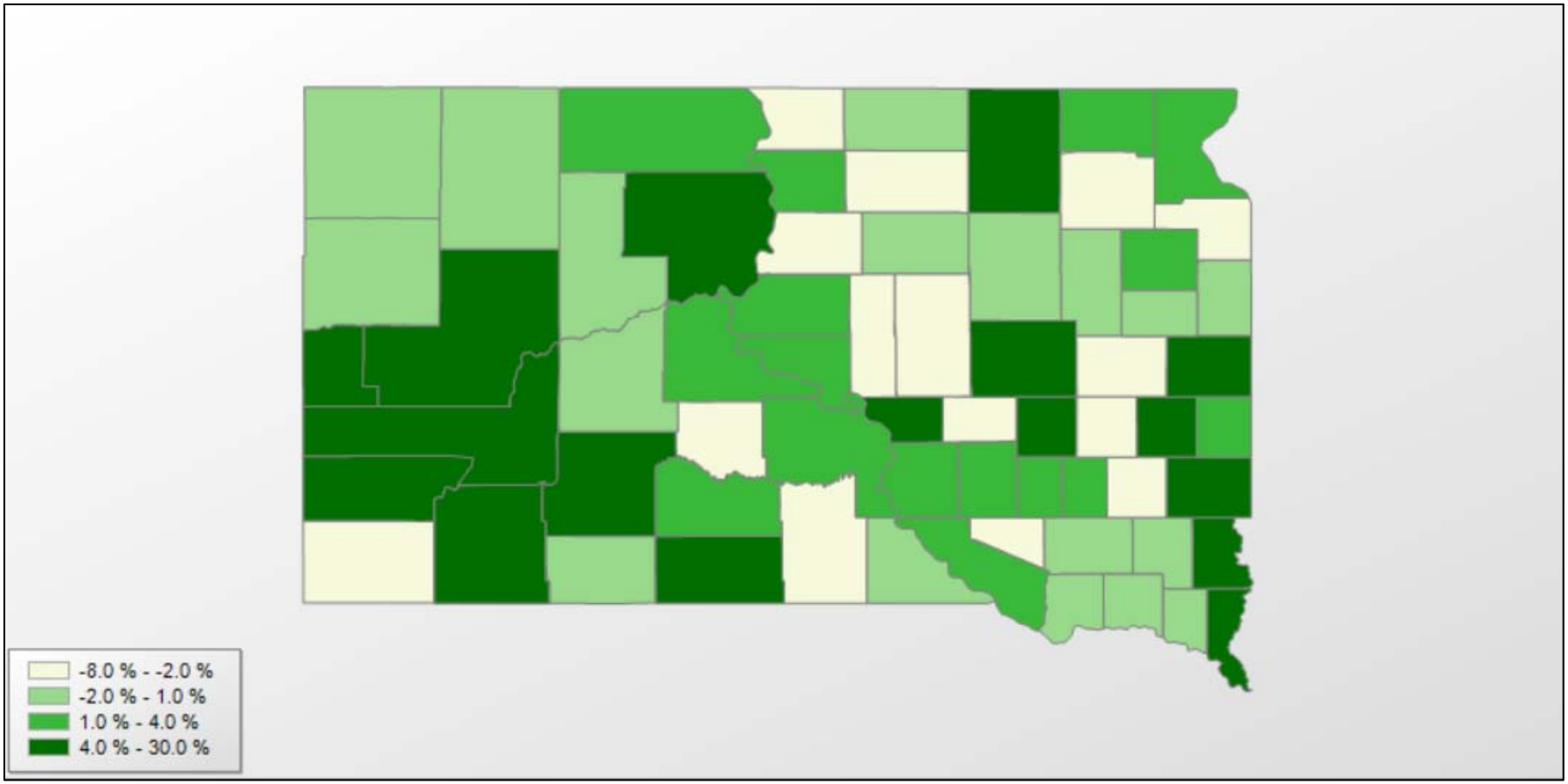

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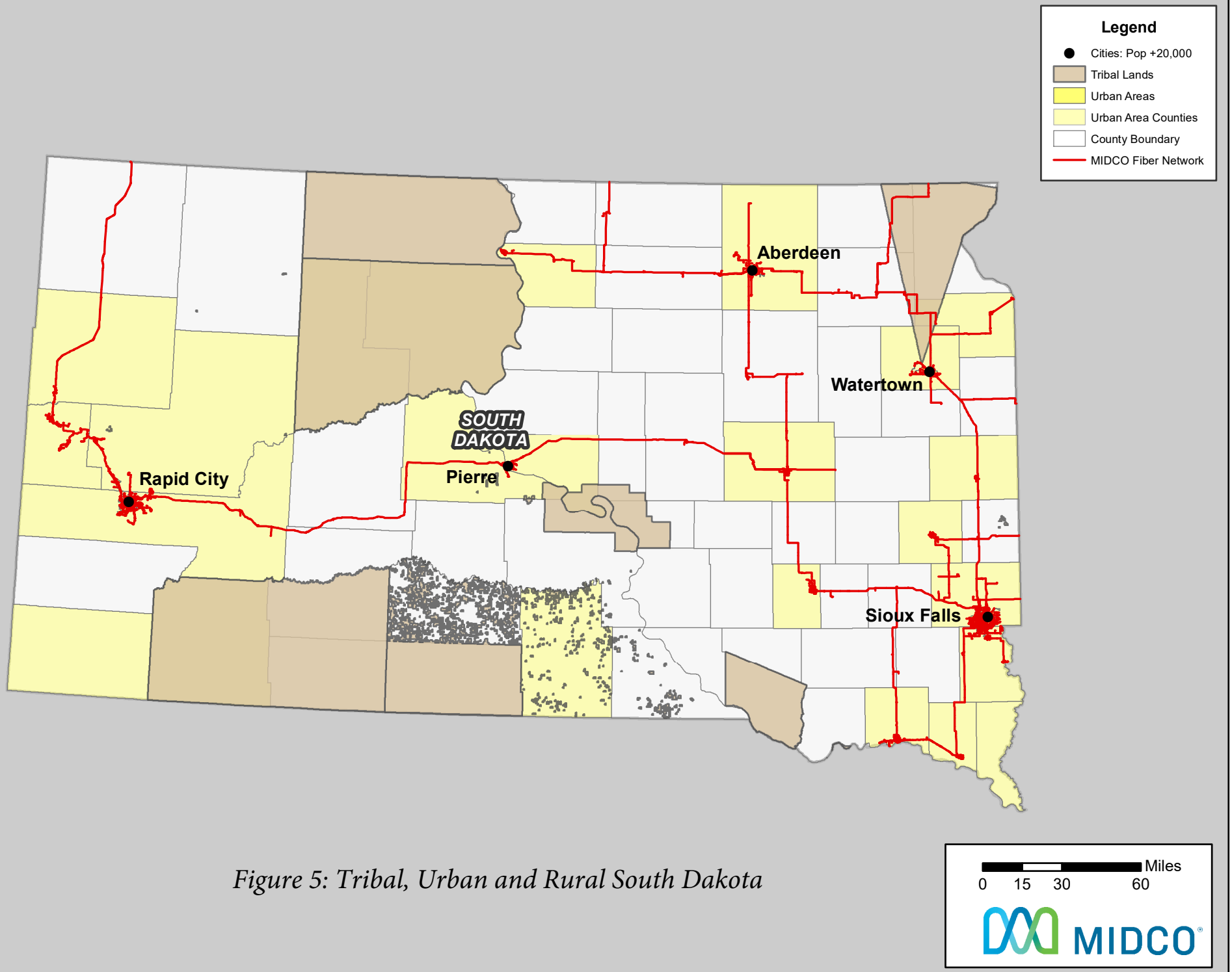

Figure 5: Tribal, Urban and Rural South Dakota